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Vol. 10, No. 5. WASHINGTON, D.C. December 1940.

Accidents.

Accidents are costly. By G. Stewart Brown. Farmers digest. v.4, no.3. December, 1940. p.57-59.

Farm accidents must be reduced. Idaho farmer. v.58. no.22. October 24, 1940. p.10. Since total losses in work accidents in all industries were 15,500 lives, these farm work fatalities represented almost 27 per cent of whole.

Agriculture.

South's dynamic agriculture. By Charles W. Summerour. Potash journal. v.4, no.5. September-October, 1940. p.3-8.

This changing agricultural world. By R. M. Walsh. Agricultural situation. v.24, no.11. November, 1940. p.9-11.
V: fats and oils.

Work and expenditures of the agricultural experiment stations in 1939. By Frederick V. Rand. Experiment station record. v.83, no.2. August 1940. p.145-149.

Air Conditioning.

Air conditioning and hot air. By Kenneth F. Gilbert. Consumers' digest. v.7, no.6. June, 1940. p.33-37. Part 1.

Air conditioning controls. By H. E. Shugars. Refrigerating engineering. v.40, no.4. October, 1940. p.221-225.
Analyses by functions selection of proper control equipment for any type of air conditioning system. Specific recommendations are made.

How to determine size and cost of freon lines. By William Parkerson. Heating & ventilating. v.37, no.10, October, 1940. p.17-21. Author develops practical set of curves for correctly sizing freon lines, for determining velocity of freon travel and for estimating cost of materials in lines.

Alcohol fuel.

Power alcohol. The australian sugar journal. v.32, no.7. Oct. 10, 1940. p.367-369,371-373,375-377,379-380. Report upon utilisation of and/or agricultural products and by-products for increased production of power alcohol.

Barns.

Low-cost and fire-resistive dairy barns, Concrete. v.48, no.11. November, 1940. p.22.

Building Construction.

Flashings--residential. Architectural record. v.88, no.5. November 1940. p.91-94.

Sound advice. By Royal Barry Wills. Better homes & gardens. v.19, no.4. December, 1940. p.22,60. Discussion of soundproofing.

Where building faults show up. By Cordell Tindall. Farmers digest. v.4, no.6. October, 1940. p. 30-31.

Channels.

Graphical method for direct determination of channel dimensions. By R. B. Hickok. Agricultural engineering. v.21, no.9. September, 1940. p.343-345. Paper is intended not to present specific design charts so much as to set forth system for Graphical solution of channel design problems as basis for construction, by engineer, of such charts for particular types of channels required for drainage, irrigation, or erosion control.

Cold Storage.

Cold storage and freezing research. By A. L. Schrader. Refrigerating engineering. v.40, no.3. September, 1940. p.163. Report on researches with fruit and vegetables at University of Maryland.

National cold storage laboratory. By D. F. Fisher. Refrigerating engineering. v.40, no.3. September, 1940. p.143-144.

Concrete.

Sawdust-concrete test results. By L. W. Neubauer. Agricultural engineering. v.21, no.9. September, 1940. p.363-366. Object of experiments discussed in paper was to determine scientifically some of critical characteristics of concrete made of cement, sawdust, and water.

Corrosion.

Laboratory corrosion tests. Indian engineering. v.108, no.1. July 1940. p. 13-14.

Cotton.

New uses for cotton fabrics. Textile weekly. v.26, no.661. November 1, 1940. p.564-565. Cotton-cement roofs for U. S. A. homes.

Cotton. (Cont'd.)

Sea-island cotton quality and ginning. Cotton ginners' journal. v.12, no.3. December, 1940. p.3-4,11-12.

Cotton Gins and Ginning.

Speeding up gin-saws to improve ginning. By Francis L. Gerdes, and Charles A. Bennett. Cotton ginners' journal. v.12, no.1. October, 1940. p.7,11.

Cottonseed.

Cottonseed pressure-cooking research. By Roscoe W. Morton. Mechanical engineering. v.62, no.10. October, 1940. p.731-735. Discussion of research at the University of Tennessee. Research study and preliminary laboratory investigations have revealed possibility of successful decortication of cottonseed, either in linted or delinted state, by means of steam explosions similar in some respects to process employed in "puffing" wheat and rice-kernels. It is probable that decortication and separation may thus be accomplished simultaneously, permitting recovery of whole cottonseed kernels relatively free from hull contamination and hence manufacture of cottonseed cake of 50 per cent protein concentration. It is now proposed to embody principles and possibilities discovered by research and experimentation with plant equipment in order to develop process further, and design suitable machinery to make use of such process in cottonseed-crushing industry.

Crop (Drying)

Drying hybrid seed corn. Agricultural engineering. v.21, no.11. November, 1940. p.428.

Grass driers in war-time. By R. N. Dixey. Farm economist. v.3, no.5. January, 1940. p.90-93.

Dams.

Consolidation of embankment and foundation materials: Progress report of sub-committee no.2 of the committee of the soil mechanics and foundations division on earth dams and embankments. American society of civil engineers. Proceedings. v.66, no.8. October, 1940. p.1491-1509.

Core control and cutoff construction at Kingsley dam. By W. J. Turnbull, and Geo. N. Carter. Civil engineering. v.10, no.10. October, 1940. p.623-627. Core control in hydraulic sluicing operations. By W. J. Turnbull. Novel construction method for curtain wall. By Geo. N. Carter.

Diversion dams, dikes, insure crops. By C.W. Miller. The montana farmer. v.27, no.22. May 15, 1940. p. 5,31.

Dams. (Cont'd.)

Masonry dams. A symposium: Discussion. By Messrs. F. A. Nickell, Leslie W. Stocker, Barton M. Jones, P. E. Gisiger, Joseph A. Kitts, S. O. Harper, and R. F. Blanks. American society of civil engineers. Proceedings. v.66, no.8. October, 1940. p.1529-1561.

Diesel Engines.

Fundamentals of diesel heat recovery. Power. v.84, no.10. October, 1940. p.70-71. Gives basic data needed to figure waste-heat-recovery possibilities.

Drain Tile.

How to prevent drain tile failures. By Fred F. Shafer. Brick & clay record. v.97, no.4. October, 1940. p.32-33. Five broad bases under which all failures of tile drains may be classified, namely (1) manufacturing processes and materials used, (2) improper design of ditches, (3) improper construction, (4) lack of inspection and maintenance, and (5) physical structure of soil. Discussion.

Education.

Employer suggests needed improvements in our system of technical education. By W.H. Carrier. Mechanical engineering. v.62, no. 10. October, 1940. p.712-714. At least five different features in our present-day technical education which are justly subject to criticism. These, of course, do not apply equally to all institutions, but can be accepted as fair criticism of the average institution. They are as follows: (1) Trend toward specialization in undergraduate courses; (2) lack of proper standards of selection of students to be admitted to engineering courses; (3) failure to develop in student habit of thorough understanding of subject matter and processes; (4) insufficient emphasis placed on development of student personality; (5) examinations and student grading which are not true test of student ability desired by employer.

Trends in engineering education. By Dugald C. Jackson. Science. v.92, no.2383. August 30, 1940. p. 183-189.

Electricity Distribution.

Operation of rural electric lines. By L. C. Flournoy. Agricultural engineering. v.21, no.9. September, 1940. p.351-354. Points emphasized are as follows: 1. Customers should know what to expect from utility. 2. There is opportunity for material savings through careful organization of meter reading and collecting routine. 3.Securing proper clearance from trees is serious problem; dead and diseased danger trees should be removed. 4.Coordination of protective equipment is essential to satisfactory operation, but is difficult to secure with present equipment. 5.Better lightning protection for meters and customers' equipment on practical cost basis is needed.

Electricity Distribution. (Cont'd.)

6.Satisfactory oil circuit breaker for rural substations at reasonable cost is needed. 7.Careful studies to coordinate equipment and reduce operating and maintenance costs will pay good dividends. 8.Careful selection and proper installation of clamps and hardware is essential in preventing radio interference. 9.Heavy maintenance on well-designed and well-constructed lines is still problem of future.

Electricity on the Farm.

Effective farm use of electricity possible with low investment. Rural electrification news. v.6, no.2. October, 1940. p.12-13.

Engineering.

English engineering units and their dimensions. By E. W. Comings. Industrial and engineering chemistry. v.32, no.7. July 1, 1940. p.984-987. System of units based on force pounds, feet, and seconds is widely used in several branches of engineering, including chemical engineering. This is four-unit system and requires occasional use of dimensional constant B which has same numerical value as standard acceleration of gravity, 32.1740, but units mass pounds X feet/force pounds X second^2, which are not those of acceleration. Use of this dimensional constant is discussed, and examples are worked out. Clear distinction between force pounds and mass pounds is made. Application of dimensional analysis to problems in fluid motion, involving quantities evaluated in four-dimension system, yields results which are also applicable to three-dimension systems, and procedure is illustrated whereby dimensional conversion factor ($B = Ma/F$) is automatically retained in final result wherever needed.

Engines.

Internal combustion engines for special fuels. By Dr. Ing. F. Dreyhaupt. The engineers' digest. v.1, no.1. June 1940. p. 4-5. Fuelled with coal tar oils and powdered coal.

Erosion.

Recent studies in raindrops and erosion. By J. Otis Laws. Agricultural engineering. v.21, no.11. November, 1940. p.431-433. Relation of raindrop size to erosion and infiltration has recently been made subject of series of studies carried on by U. S. Soil Conservation Service as part of general program of investigation into mechanics of water-erosion process.

Evaporation.

Evaporation of water from saturated surfaces. By R. W. Powell. Engineering. v.150, no.3897. September 20, 1940. p.238-239. Results are given for total evaporation from several surfaces of various dimensions. Results for each type of surface can be correlated so as to give single curve from which it becomes possible to deduce rates of evaporation corresponding to wide range of air velocities and surface dimensions.

Farm Buildings.

Packaged farm buildings form basis for prosperous lumber yard. American lumberman. v.67. no.3183. July 27, 1940. p. 36-37.

Philosophy of farm structures. By E. E. Brackett. Agricultural engineering. v.21, no.9. September, 1940. p.355-356.

Farm income.

Changing composition of farm income. Agricultural situation. v.24, no.11. November, 1940. p.21-22. Table 1. Percentage contribution of selected farm products to total gross farm income, 1869-73, 1909-13, 1934-37.

Farm Machinery and Equipment.

Expenditures for farm machinery. By O. C. Stine. Agricultural situation. v.24, no.11. November, 1940. p.12-14. Table 1.--Estimated farmers' purchases of automobiles, motortrucks, tractors and other farm machinery, 1910-39.

Farmers' implement problems. By Earle K. Rambo. Agricultural engineering. v.21, no.9. September, 1940. p.367.

Five new trends in farm machinery. By B. A. Jennings. Agricultural leaders' digest. v.21, no.8. November, 1940. p. 15. First trend is development of small, one-plow tractors. This is good thing because it has brought power to operators of small farms who could not afford to own or run large, heavy tractors. Another trend is building of other equipment to meet demands of smaller farm. Third trend concerns materials of which machinery is made. At present shift is noted to use of steel. Another trend which may not be so beneficial to agriculture, is building and selling of equipment to be attached directly to tractor. Equipment is handy, but may be good only as long as present tractor is used. Last trend is use of rubber tires, which serves two purposes. It decreases draft on transportation loads as wagons, manure spreaders, and sprayers, and also absorbs shock, jolts, and vibration.

Flow lines in farm machine forgings. By June Roberts. Agricultural engineering. v.21, no.9. September, 1940. p.346-347.

Germany reduces types in standardization of farm machinery. Implement record. v.37, no.10. October, 1940. p.35. Progress has been made in reducing great number of agricultural machinery and implements manufactured in Germany, although standardization in this field has not yet taken place to same extent as in case of tractors. Special decree covering motor vehicles reduced these from 62 to 20 types. So far type reduction in farm machinery has been more process of first eliminating such models as have proven economically inefficient. Order of Trustee for Machinery Production, dated April 26 and effective October 1, 1940, makes following provisions for mowing machines in Germany: 1. Horse drawn grass mowers may be manufactured

Farm Machinery and Equipment. (Cont'd.)

only for cutting widths of 1.07 meters (3 1/2 feet), 1.22 meters (4 feet) and 1.37 meters (4 1/2 feet). 2. Manufacture of grain mowers with swathlayers will be discontinued in future. 3. Horse drawn binders have been standardized with cutting widths of 1.52 meters (5 feet) and 1.83 meters (6 feet), power binders with cutting widths of 5, 6, 7, and 8 feet.

Hay or grain loader is powered by tractor. Popular mechanics. v.74, no.6. December, 1940. p.859. Resembling common hay loader, it has new type of elevator and reel. Grain shocks are tipped by reel onto elevator conveying bundles from ground to rack wagon. Loader operates with power takeoff from its tractor. Primarily designed for loading grain shocks, machine is also used in hayfield. Six-inch tines set in angle-iron crossbars of elevating mechanism pick hay from ground and keep it from rolling back. Metal bottom prevents leaves and bundles from dropping through elevating chain.

Latest revelations of the torch and arc school of invention. By F. Hal Higgens. Farm implement news. v.61, no.21. October 17, 1940. p. 20-21.

Mechanization makes strides toward solving beet farming problems. By F. Hal Higgens. Facts about sugar. v.34, no.12. December 1939. p. 23-27. New developments during past year.

Motorized tiller. Scientific american. v.163, no.4. October, 1940. p.211. Particular feature of this tiller is group of rotating, sharply pointed tines under hood at rear of machine. These tines literally tear soil to shreds, thus making it unnecessary to plow and then to disk and perhaps to harrow seed bed being prepared. Machine operates equally well in tall weeds which it rips up by roots. It is particularly adaptable to job of tilling soil between shrubs or in other restricted or confined spaces.

Potato digger adjustment in relation to tuber bruising. By E. V. Hardenburg and C. N. Turner. Farmers digest. v.4, no.8. December, 1940. p.63-66.

Results of a corn husking mechanism study. By E. V. Collins, J. M. Trummel, and C. K. Shedd. Agricultural engineering. v.21, no.11. November, 1940. p.425-428.

Role of nickel in the production of farm tools. By H. L. Geiger. Agricultural engineering. v.21, no.11. November, 1940. p.441-444,449. Part 2. Cast Iron.

Threshing and cleaning equipment for sugar beet seed. By H. W. Bockstahler and Ralph F. Seamans. Journal of the american society of agronomy. v.32, no.10. October, 1940. p.794-802. Details of operation are briefly stated and, as necessary, drawings to scale are given.

Farm Machinery and Equipment. (Cont'd.)

What implement manufacturers are doing to assist soybean growers. By F. A. Wirt. Farm machinery & equipment. no.1881. September, 1940. p.5-7,23-25. Cost-reducing machinery important factor in making greatly increased acreage possible and profitable.

Farmhouses.

For better rural housing. American lumberman. v.67, no.3179. June 1, 1940. p.52. Co-operating with various Government agencies interested in housing, new organization is being created known as National Homes Foundation, which will represent manufacturers, local building material dealers and trade associations in building and allied fields.

Fences.

Progress report on wire fence exposure tests. By J. W. Crofoot. Agricultural engineering. v.21, no.11. November, 1940. p. 450.

Fences, Electric

Live-wire fence. By Carlton Stoddard. Successful farming. v.38, no.10. October, 1940. p.19,38-39.

Filters.

Filter operation and maintenance. By John R. Baylis. Water works engineering. v.93, no.22. October 23, 1940. p. 1351-1353,1368. Part 2.

Filter operation and maintenance. By John R. Baylis. Water works engineering. v.93, no.23. November 6, 1940. p.1402-1404, 1432-1433. Covers maintenance of filters and some causes for poor performance. Part 3.

Filter operation and maintenance. By John R. Baylis. Water works engineering. v.93, no.24. November 20, 1940. p.1460-1462, 1483-1484. Part 4.

Fire Protection.

Designing for greater fire safety. Architectural record. v.88, no.4. October 1940. p. 81-83. Summarizes measures that architects may take to reduce needless drain on the nation's resources, property and lives.

Fire departments for the farm. By Leon J. McDonald. Farm and ranch. v.59, no.9. September, 1940. p. 32,37.

Fire Protection. (Cont'd.)

Flameproofed cotton prevents spread of fire. Popular mechanics. v.74, no.6. December, 1940. p.811. Cotton made flameproof by special process provides low-cost, lightweight and durable insulation for homes and attics, as well as a safe material for decorative purposes. Fibers of cotton are "wrapped up" in crystals of certain substances that make fibers incapable of flaming up. To test its fireproof quality, common rivet heated to 1,500 degrees was buried in two pounds of cotton and left until it cooled to normal temperature. Loss of less than five per cent in weight of cotton resulted. It can be cut through with a torch, but flame will not spread.

Hand fire extinguishers. Bakers digest. v.15, no.4. October, 1940. p.72. Their selection, installation maintenance and use.

Is your home safe from fire? House & garden. v.78, no. 4. October, 1940. p.34-35, 68-69.

Flax.

Flax straw "revived". Business week. no. 581. October 19, 1940. p.51. Cleaning machine, used right on farm, makes possible profitable by-product.

Floors.

Concrete feeding floors cut production costs. Farmers digest. v.4, no.8. December, 1940. p.10-11.

Flow of Heat.

Experimental determination of fluctuating heat flow. The engineers' digest. v.1, no. 1. June 1940. p.50-51.

Foods, Frozen

Frozen assets. House & garden. v.78, no.4. October, 1940. p.58. New quick-freezing unit for home use offers great economy, variety in fine food.

Hay Handling.

Good haystacks must resist weather damage. By G. J. Firman. The agricultural gazette. v.51, no.8. August 1, 1940. p.415-419.

Heating.

Five steps in warm-air. By Henry D. Crane. Fueloil journal. v.19, no.5. November, 1940. p.26-30.

Modern Unit heaters. Power. v.84, no.10. October, 1940. p.72-74,136,138. "Packaged forced-warm-air systems" offer flexible, efficient, and low-cost heating for wide range of applications. Here's how and why, along with practical data on today's units.

Heating. (Cont'd.)

Progress report on radiant heating and cooling. Agricultural record. v.88, no.3. September 1940. p. 67-73.

Room heating and ventilation. Electricity on the farm. v.13, no.12. December, 1940. p.12,24.

Slab heating in general. By Prof. B. H. Jennings. Domestic engineering. v.156, no.3. September, 1940. p.52-53, 106. Basic findings regarding panel heating.

Speed and accuracy in figuring heat loss. By Ralph A. Krauss. Heating & ventilating. v.37, no.10. October, 1940. p.35-39. Presents tables and graphs which greatly shorten time required to make heat loss calculations but at same time maintain desired accuracy. Tables concerning infiltration and transmission losses through doors and windows of stock size are particularly ingenious.

Houses.

More integration, less prefabrication spell success for American Houses, Inc. The architectural forum. v.73, no.1. July 1940. p. 69-72, Adv. p. 54.

Shanties waste heat. By John W. Schulz. Fueloil journal. v.19, no.5. November, 1940. p.11-14. Tells how to lower home heating costs. Deals with house construction.

Small house built of metal lath and concrete. Popular mechanics. v.74, no.6. December, 1940. p.871.
Concrete and steel construction of small homes at low cost has been achieved by use of light steel channels to support metal lath on which cement mortar and plaster are laid to form walls. It is fireproof, and highly resistent to windstorm, lightning, earthquake and vermin attacks. Outer walls, two inches thick, were made by troweling cement morter on both sides of screen of metal lath supported by rod-like steel channels. Similar screen supports room plastering, and mineral-wool blankets fill space between outer and room walls. Expanded steel joists two feet apart support floor slab, formed by spreading nearly three inches of stiff concrete over ribbed metal lath. Surface was troweled smooth to take linoleum, and roof slab was formed like floor. Partitions two inches thick were formed like outer wall slab, with mortar on both sides of metal lath. Skeleton of steel angles so light that hoisting apparatus was not necessary. Supports for house frame being bolted together and anchored to foundation, which is no thicker than that required for frame house.

Insulation.

Loose fill insulation proves practical in hollow brick wall. Brick & clay record. v.97, no.4. October, 1940. p. 19-20.
Gives diagram of Cain wall construction and Farrenwall construction.

Insulation. (Cont'd.)

Savings from insulation in low-cost housing. By W. H. Purnell. Heating & ventilating. v.37, no.10. October, 1940. p. 31-33. Discusses economic aspects of insulation and reports on results of tests comparing computed and actual heat losses of insulated and uninsulated houses.

Irrigation.

Every farm its own rainmaker. By A. E. Long. Implement & tractor. v.55, no.20. September 28, 1940. p. 12-14.

Unique irrigation method. By W. S. Ingham. California cultivator. v.87, no.19. September 21, 1940. p.519. Cross furrow system of irrigation, four furrows both ways. Cross furrows are split in center of benches on account of lateral slope--forming double loops. First irrigating is run in all four straight furrows to settle loose soil and to encourage weed growth to prevent erosion of soil. Loops are then connected to tree, or inside furrows, with dams in straight furrows at every other cross furrow. Water is carried from pipelines in two center furrows to lower end of grove. It is then turned into tree furrows at intervals of whatever number of trees water will run through cross loops. The last change of water is made at the pipeline. Advantages of this system are: Even distribution of water, thereby encouraging large root system and feeding zone; little or no waste water, and conservation of water and soil in heavy rainfall.

Irrigation Water.

Salt balance in irrigated areas. By Carl S. Scofield. Journal of agricultural research. v.61, no.1. July 1, 1940. p.17-39. Objectives of paper are to describe methods and results (1) of field observations made to ascertain quantities of irrigated areas and (2) of salt-balance experiment made at Rubidoux Laboratory, Riverside, Calif.

Land Clearing.

Land clearing in the northwest. By Willard W. Troxell and Harry J. Voth. Land policy review. v.3, no.8. December, 1940. p.19-24.

Mechanized land clearing. By O. A. Fitzgerald. Farmers digest. v.4, no.8. December, 1940. p.35-36.

Light Meters.

Graphic light meter. By Kenneth Post and Maurice W. Nixon. Agricultural engineering. v.21, no.11. November, 1940. p.429-430.

Lighting.

Studies of artificial lighting of dairy stables. By M.A.R. Kelley and A.V. Krewatch. Agricultural engineering. v.21, no. 11. November, 1940. p.445-449. Purpose of tests described

Lighting. (Cont'd.)

in this paper was to obtain further information on best arrangement of lamps for use in lighting dairy stables and to determine present farm practices.

Log Cabins.

Log cabins and how to build them. By J. A. Emmett. American lumberman. v.67, no.3176. April 20, 1940. p. 42-44.

Milk Cooling.

Cooling milk on the farm. By H. A. Ruehe. Milk plant monthly. v.29, no.12. December, 1940. p.23-25.

Motors, Electric

Care of electric motors. By D. T. Anderton. Bakers digest. v.15, no.4. October, 1940. p.73.

Patents.

Role of the patent system in national defense. By Conway P. Coe. Domestic commerce. v.26, no.16. November 7, 1940. p.267-269.

Poultry houses and Equipment.

Rational approach to poultry house design. By J. L. Strahon. Agricultural engineering. v.21, no.9. September, 1940. p.357-360. Discussion limited strictly to considerations of relations existing between essential physical factors involved in design.

Pressure Measurements.

General wedge theory of earth pressure: Discussion. By Karl Terzaghi. American society of civil engineers. Proceedings. v.66, no.8. October, 1940. p.1511-1518.

Producer Gas.

Producer gas for autos. Mechanical engineering. v.62, no.10. October, 1940. p.746-747. Cheap producer gas can be used with little or no change in carburetion, and some motor vehicles have been equipped with large tanks or inflated bags which can be filled every 10 to 30 miles at gas-dispensing stations along main highways. Disadvantage of frequent stops for refueling can be overcome by installing miniature gas-producing plants on vehicles themselves, and one of larger British manufacturing companies has developed improved gas-plant unit which is now being made and sold in large quantities.

Reclamation.

Broad view of reclamation. By John C. Page. Civil engineering. v.10, no. 10. October, 1940. p.615-618. National wealth increased in last four decades by federal irrigation program.

Refrigeration.

Characteristics of the steam jet system. By R. H. Stevens. Refrigerating engineering. v.40, no.3. September, 1940. p.149-151. Various types of steam jet systems are described by author, who sketches in detail modern unit which incorporates many improvements and refinements in design, all making for greater efficiency.

Cold comfort for perishable cargoes. Commercial car journal. v.60, no.3. November, 1940. p.50-53,140,142,144,146,148, 150,152,154,156,158,160. Story of truck refrigeration as it has developed to the present day.

Ice refrigerated precoolers. By H. L. Lincoln. Refrigerating engineering. v.40, no.4. October, 1940. p.217-220. Describes type of fruit cooler which has been used for several seasons in California--basic feature is ice bunker at end of each room. Air motion is carefully controlled to provide flexibility of capacity.

Law of corresponding states as applied in refrigeration. By J. S. Doolittle. Refrigerating engineering. v.40, no.3. September, 1940. p. 165-167. Law of corresponding states offers convenient means of obtaining, in absence of more accurate data, an approximation of saturation temperatures and volumes, both liquid and vapor. This method requires, besides steam table, only knowledge of critical conditions. If deviations of substance, from those of corresponding states, are known at one pressure, then, by use of methods here presented, saturation temperatures and volumes at other pressures can be calculated with sufficient accuracy for most engineering purposes. Theoretical calculations leading to improved statement of law are also given.

Modified atmospheres for fruits and vegetables in storage and in transit. By Charles Brooks. Refrigerating engineering. v.40, no.4. October, 1940. p.233-237. Apples. Pears. Stone fruits. Berries. Citrus fruit. Other fruits. Vegetables. Nature of plant reactions to carbon dioxide treatments. Economic considerations. References.

Refrigeration of fats and oils. By H. S. Mitchell. Refrigerating engineering. v.40, no.3. September, 1940. p.153-157, 167.

Refrigeration of lemons and grapefruit. Refrigerating engineering. v.40, no.4. October, 1940. Refrigerating engineering application data 18, p.1-8. Handling methods. Storage methods. Diseases of lemons. Air conditioning apparatus. Load calculations. Air distribution. Grapefruit: Handling and storage methods. Diseases of grapefruit. Cooling requirements. Heating requirements and air distribution. Conclusion.

Refrigeration of oranges. Refrigerating engineering. v.40,no.3. September, 1940. Refrigerating engineering application data 17, p.1-8. Storage conditions. Respiration. Refrigerants. Handling oranges. Precooling plant. Load calculations. Equipment selection. Air Distribution.

Refrigeration. (Cont'd.)

Study hoosier farm refrigeration. Refrigerating engineering. v.40, no.3. September, 1940. p. 152.

Refrigerator Lockers.

Farm freezing systems gain wider acceptance in Washington State. Air conditioning & refrigeration news. v.31, no.12. November 20, 1940. p.8. 44 plant plans sold in 6 weeks by state college.

Refrigeration, meat and the soil. By John P. Ferris. Refrigerating engineering. v.40, no.3. September, 1940. p.180, 182. Smaller locker plants advocated.

Research.

Publication of scientific research. By Dr. Atherton Seidell. Science. v.92, no.2390. October 18, 1940. p.345-347.

Review of major A.S.T.M. research activities. ASTM bulletin. no.106. October 1940. p.52-63. Projects listed under (1) properties of materials; (II) methods of testing.

Reservoirs.

Measuring reservoir capacity from twenty thousand feet. Power plant engineering. v.44, no.11. November, 1940. p.89,92. Improved technique and equipment extends scope of aerial survey work. With new type planes and contour finder, surveys that formerly required six months can now be completed in matter of three weeks.

Roofs.

Low cost hen house roofs. By F. E. Mussehl. Farmers digest. v.4, no.8. December, 1940. p.49. Experimental work at Agricultural College during past three years has indicated that built-up roofs made with 15-pound felt paper, asphalt emulsion, and sand will give excellent service under Nebraska conditions.

Rubber.

Revolution in rubber? By Jesse J. Hipple. Magazine of wall street. v.66,no.6. June 29, 1940. p.351-353, 382-383.

Rubber---an american problem. By W. Ladejinsky. Agricultural situation. v.24, no.11. November, 1940. p. 15-18.

Rubber that isn't rubber. Sugar news. v.21, no.9. September, 1940. Sugar news supplement, p. 32,34.

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